

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : C07K 14/47, C12N 15/12, 15/63		A1	(11) International Publication Number: WO 00/68265 (43) International Publication Date: 16 November 2000 (16.11.00)
(21) International Application Number: PCT/US00/12842			(74) Agents: CADENA, Deborah, L. et al.; Campbell & Flores LLP, 7th floor, 4370 La Jolla Village Drive, San Diego, CA 92122 (US).
(22) International Filing Date: 10 May 2000 (10.05.00)			
(30) Priority Data: 09/309,487 10 May 1999 (10.05.99) US			(81) Designated States: AE, AG, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), DM, DZ, EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (Utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application US 09/309,487 (CIP) Filed on 10 May 1999 (10.05.99)			
(71) Applicant (for all designated States except US): THE REGENTS OF THE UNIVERSITY OF CALIFORNIA [US/US]; 12th floor, 1111 Franklin Street, Oakland, CA 94607-5200 (US).			Published With international search report.
(72) Inventors; and (75) Inventors/Applicants (for US only): SELSTED, Michael, E. [US/US]; 16 Young Court, Irvine, CA 92612 (US). TANG, Yi-Quan [CN/US]; 22 Schubert Court, Irvine, CA 92612 (US). YUAN, Jun [CN/US]; 34 Club Vista, Dove Canyon, CA 92679 (US). OUELLETTE, Andre, J. [US/US]; 32 Harvey Court, Irvine, CA 92612 (US).			

(54) Title: ANTIMICROBIAL THETA DEFENSINS AND METHODS OF USING SAME

(57) Abstract

The present invention relates to an isolated cyclic peptide, theta defensin, having antimicrobial activity, and to theta defensin analogs. A theta defensin can have the amino acid sequence Xaa1-Xaa2-Xaa3-Xaa4-Xaa5-Xaa1-Xaa6-Xaa4-Xaa4-Xaa1-Xaa1-Xaa6-Xaa4-Xaa5-Xaa1-Xaa3-Xaa7-Xaa8, wherein Xaa1 to Xaa8 are defined; wherein Xaa1 can be linked through a peptide bond to Xaa8; and wherein crosslinks can be formed between Xaa3 and Xaa3, between Xaa5 and Xaa5, and between Xaa7 and Xaa7. For example, the invention provides a theta defensin having the amino acid sequence Gly-Phe-Cys-Arg-Cys-Leu-Cys-Arg-Arg-Gly-Val-Cys-Arg-Cys-Ile-Cys-Thr-Arg (SEQ ID NO:1), wherein the Gly at position 1 (Gly-1) is linked through a peptide bond to Arg-18, and wherein disulfide bonds are present between Cys-3 and Cys-16, between Cys-5 and Cys-14, and between Cys-7 and Cys-12. The invention also provides nucleic acids encoding theta defensins and antibodies that specifically bind a theta defensin. In addition, the invention relates to methods of using theta defensin to reduce or inhibit microbial growth or survival.